

REMARKS

Summary

Claims 1-24 were pending, and all of the Claims were rejected in the Office action. Claims 1, 13, and 23 have been amended by this paper. Claim 24 is withdrawn. All amendments are made relative to the patent specification, including the claims.

The support of the amendment may be found in FIG. 4B and col. 7, lines 16-39. The Applicants respectfully traverse the rejection of the claims, as set forth below. According to MPEP Section 1453, only the amended claims are presented in the previous section. However, a complete list of claims is also attached at the end of this paper for the Examiner's convenience.

Reissue Applications

Claims 1-23 are rejected under 35 U.S.C. 251 as being based on matter added to the patent not supported by the prior patent. Claims 1, 13, and 23 have been amended. The limitation "the plurality of metal plates are configured to pass high frequency current so that the plasma treatment equipment have a small susceptance impedance with low frequency dependency and high power consumption efficiency" is replaced by "the plurality of metal plates are configured so that the plasma treatment equipment have a suscepter impedance less than 15Ω using a power source having frequency higher than 13.56MHz." The support of the amendment may be found in FIG. 4B and col. 7, lines 16-39. Applicant respectfully requests the Examiner to withdraw the rejections.

Claim Rejections under 35 U.S.C. § 112

Claims 1-23 are rejected under 35 U.S.C. 112 as failing to comply with the written description requirement. Claims 1, 13, and 23 have been amended. The limitation "the plurality of metal plates are configured to pass high frequency current so that the plasma treatment equipment have a small susceptance impedance with low frequency dependency and high power consumption efficiency" is replaced by "the plurality of metal plates are configured so that the plasma treatment equipment have a

susceptor impedance less than 15Ω using a power source having frequency higher than 13.56MHz.” The support of the amendment may be found in FIG. 4B and col. 7, lines 16-39. Applicant respectfully requests the Examiner to withdraw the rejections.

The Examiner further alleges that the term “metal plates” in the claims is not clear because “the metal plates are elastic springs” (Page 4 of the Office Action). Applicants respectfully disagree because the specification, in col. 6 line 25, discloses that “[b]oth **one ends of** the respective metal plates 80a and 80b which are elastic springs are connected to the short points B1 and B2 ...” It is **the end of the metal plate** that is elastic spring. Thus, the metal plate refers to a flat surface.

The terms “small”, “low” and “high” in claims have been removed as suggested by the Examiner. Applicants respectfully submit that the amended claims are now definite.

Claim Rejections under 35 U.S.C. § 103

Claims 1-23 were rejected under 35 U.S.C. § 103(a) as being obvious over the Admitted Prior Art (APA) in view of Kawakami et al. (JP 06-333879; “Kawakami”), Sakai et al. (JP 10-032171; “Sakai”), or Kagatsume et al. (US 4,908,095; “Kagatsume”).

Claim 1 recites plasma treatment equipment configured such that “the chamber wall of the chamber and the susceptor electrode are AC shorted to each other by a **plurality of metal plates**... the plurality of metal plates are configured so that the plasma treatment equipment have a **susceptor impedance less than 15Ω** using a power source having frequency higher than 13.56MHz.” The cited reference does not teach or suggest at least these limitations.

The Examiner admits that APA does not disclose a **plurality of metal plates** and alleges that each of the other cited references teach these limitations by disclosing a metal element. The mere disclosure of “a metal element” in these references, however, does not teach or suggest that “the plurality of metal plates are configured so that the plasma treatment equipment have a susceptor impedance less than 15Ω using a power source having frequency higher than 13.56MHz.” First, Kawakami discloses elastic bellows 14 connecting a lower electrode 8 and a lower electrode supporter 12 (Kawakami, FIGS. 1 and 6). The bellows 14, however, are not a metal plate. Second,

Sakai discloses a coil 12 connecting a lower electrode 8 and a reaction chamber 6. The coil 12, however, is not a metal plate. Third, Kagatsume discloses a side wall of the chamber and the susceptor electrode are AC shorted to each other by a bellows 27 (Kagatsume, FIG. 5 and lines 52-57, section 5). However, the metal element 27 is not a metal plate. The cited references do not teach that the plasma treatment equipment have a susceptor impedance less than 15Ω using a power source having frequency higher than 13.56MHz. Therefore, the cited references, individually or combined, do not teach that “the plurality of **metal plates** are configured so that the plasma treatment equipment have a **susceptor impedance less than 15Ω** using a power source having frequency higher than 13.56MHz.”

The Examiner further alleges it would be obvious to use a metal plate from the disclosed bellows and coils because the only difference between them is the “particular shape of the metal elements.” Applicant respectfully disagrees. In fact, the metal elements disclosed in the cited references would result in a structure with the opposite effect of Applicant’s claimed structure. The impedance of a metal element depends on frequency of the power source and the shape of the metal element (see FIG 4A and 4B). In the cited references, the impedances of the bellows and coils increase as the frequency increase. The increased impedance would consume much more power and decrease the overall power consumption efficiency. Thus, the cited references do not teach that “the plurality of **metal plates** are configured so that the plasma treatment equipment have a **susceptor impedance less than 15Ω** using a power source having frequency higher than 13.56MHz.”

Therefore, Claim 1 is allowable for at least this reason. Accordingly, claims 13 and 23 are allowable for similar reasons. Claims 2-10, 14, and 17-22 are allowable either as claims dependent on an allowable base claim.